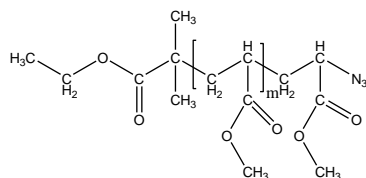


Sample Name: α -azido end functionalized Poly (methyl acrylate)

Sample #: P41615-MA-N3

Structure:



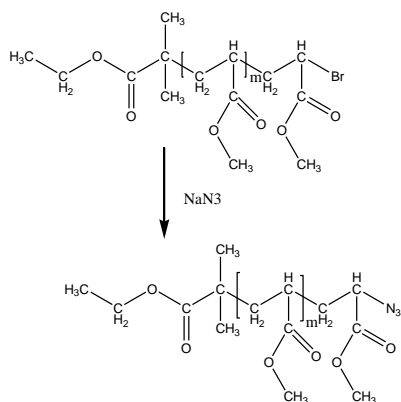
Composition:

Mn x 10 ³	PDI
4.0	1.05

Synthesis Procedure:

The Br end functionalized PMA was prepared by ATRP polymerization process followed by reaction Br end PMA with NaN₃ in DMF.

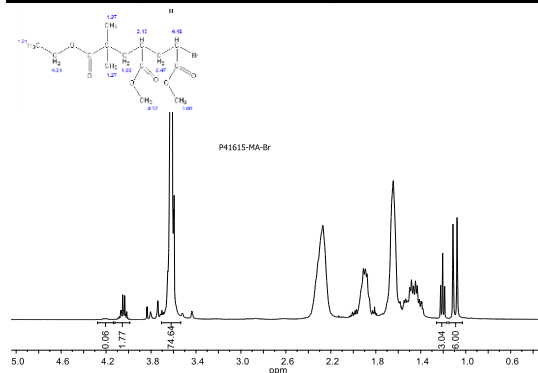
The following reaction scheme shows how the product was prepared:



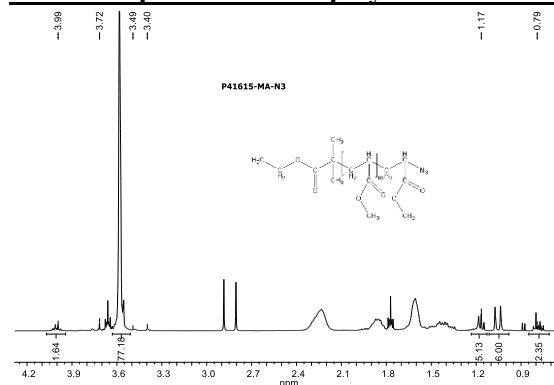
Characterization:

The product was characterized by size exclusion chromatography (SEC), ¹H NMR and FTIR.

¹H NMR spectrum of the polymer: PMA-Br

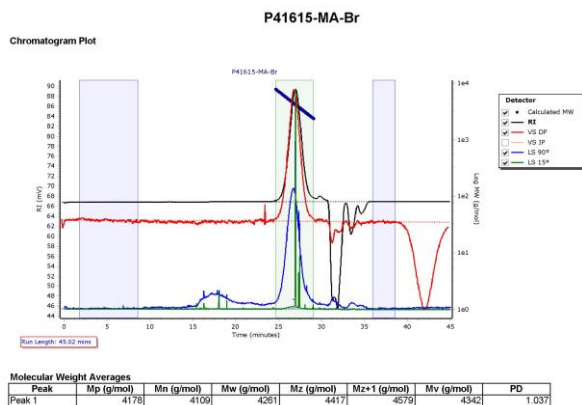


¹H NMR spectrum of the polymer: PMA-N3



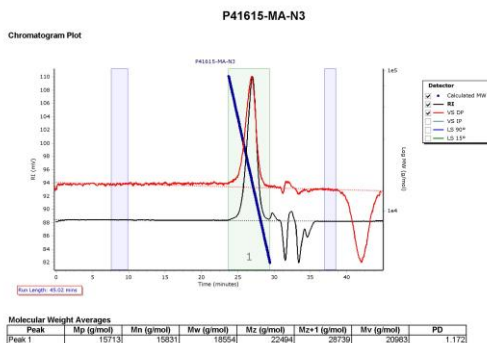
SEC elugram of the PMA-Br:

Agilent GPC/SEC Software

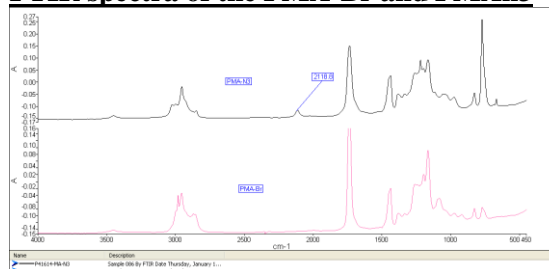


After converting Br to N3 end group the elution count of the obtain polymer in their SEC changes to lower elution count:

Agilent GPC/SEC Software



FTIR spectra of the PMA-Br and PMA-N3



FTIR Spectra:

Presence of Azide end groups were observed by FTIR (Cm-1): 2118(s) and compare with Carbonyl 1735 (s).

Calibration for FTIR:

Methyl 2- azidopropionate and Bromo end functionalized poly methyl acrylate were mixed in several ration in CHCl₃ and FTIR were made in CHCl₃ in a solution cell. The integration of the peak corresponding to the azide and carbonyl groups were compared. It gives you an approximate functionalization. The details are reported in our publication: Xing Fu. Zhong, S. K.Varshney, and A. Eisenberg

"Critical Micellization Length for Polystyrene-b-Na-Acrylate Block Ionomers" CA Vol 117, 26, 252280 Macromolecules 1992, 25, 7160-7167.